NORTH PACIFIC OCEAN, JANUARY 1940

By WILLIS E. HURD

Atmospheric pressure.—Most unusual and persistent conditions of low atmospheric pressure overspread the middle waters of the North Pacific during January 1940. While the center of the Aleutian LOW occupied a normal position over or a little south of the Aleutian Islands, cyclonic conditions spread far to the southward, with the result that, even in the latitudes of Midway Island and Honolulu the customary winter anticyclone was, on the average, completely nonexistent. At Honolulu the average pressure of 1,011.2 millibars (29.86 inches) was 4.7 millibars (0.14 inch) below the normal of the month; while at Midway Island the average pressure of 1,007.7 millibars (29.76 inches) was 9.2 millibars (0.27 inch) below the normal, or the lowest of record there for any month during the past 29 years. Minus pressure departures, though in decreasing value, continued as far to the eastward as the west coast of the United States, and as far to the southwestward as about the 135th meridian of east longitude. The lowest barometer reported by any Pacific vessel this month was 967.1 millibars (28.56 inches) read on the Japanese motorship *Amagisan Maru* on the 25th, near 40° N., 135° W. It was accompanied by a south-southeast gale of force 9.

The North Pacific anticyclone occupied a small region to the southwestward of California. In Asiatic waters the continental anticyclone extended oceanward from the China coast to a little beyond the Nansei Islands.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, January 1940, at selected stations*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Millibars	*Millibars*	*Millibars*		*Millibars*	
Point Barrow	1,022.0	+3.4	1,047	14	988	10
Dutch Harbor	997.8	−3.9	1,021	11	979	22
St. Paul	1,001.2	−2.2	1,021	1	984	23
Kodiak	1,004.2	+2.2	1,025	11	982	16
Juneau	1,012.9	+1.0	1,026	18	987	28
Tatoosh Island	1,014.2	−1.1	1,029	14	994	1
San Francisco	1,016.9	−2.7	1,025	15	1,005	7
Mazatlan	1,014.5	+.3	1,018	25, 28	1,011	13–15, 18
Honolulu	1,011.2	−4.7	1,017	30	1,005	19
Midway Island	1,007.7	−9.2	1,016	4	999	31
Guam	1,010.8	−1.7	1,015	11	1,004	22
Manila	1,012.4	+.2	1,016	26	1,009	15
Hong Kong	1,018.1	−1.5	1,025	23	1,010	15
Naha	1,019.5	+.9	1,026	26	1,012	12, 15
Titijima	1,014.5	−1.8	1,021	11	1,005	13
Petropavlovsk	998.8	−5.3	1,013	31	976	12

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Extratropical cyclones and gales.—The storminess of January 1940, was abnormal on the North Pacific Ocean. Except to the eastward of the 140th meridian of west longitude, stormy weather to the northward of the 40th parallel was perhaps the least pronounced of record for a winter month in that great region. In fact, for the entire area north of 35° N., and west of 150° W., only 4 or 5 days with gale winds (force 8 to 10) are to be noted in ships' reports.

On the contrary, over the eastern part of the ocean, from northern United States coastal waters, and extending southwestward broadly along the routes toward the Hawaiian Islands, extraordinarily stormy conditions for any winter month prevailed. Here rather densely distributed gales of force 8 to 10 occurred on no less than 20 days, which appears to constitute a record for gale frequency, particularly to the southward of the 35th parallel in these waters.

Another stormy region was the belt of 30° to 35° N., between the meridians of approximately 145° E. and 160° W. Along this strip the heaviest winds of the month occurred, attaining force 11 on the 9th, 10th, 13th, 17th, and 19th.

In these latitudes while en route from the Philippine Islands toward San Pedro, the Norwegian motorship *Bonneville* had probably the most tempestuous voyage of any ship of the month on the North Pacific Ocean. On January 8 she entered the stormy weather belt near 32° N., 145° E. On the 21st she finally emerged from it, near 32° N., 160° W. During the period the vessel encountered daily gales, as strong as force 10 on the 11th, 12th, 16th, and 20th, and as high as force 11 on the 9th, 10th, 17th, and 19th. The lowest barometer read on the *Bonneville* during the voyage was 985.4 millibars (29.10 inches) occurring on the 18th, in 32°30′ N., 168°14′ W.

Along the immediate coast of the United States, principally off Washington and Oregon, ships reported gales on the 1st, 3d, 4th, 7th, 24th, 25th, and 26th, all of force 9 except that of the 7th, southeast, force 8, and that of the 3d, southeast, force 10, both off the coast of southern Oregon. These gales occurred in connection with cyclones centered at some distance to the westward.

Tehuantepecers.—There was considerable wind activity in the Gulf of Tehuantepec during January, with Tehuantepecers reported on 9 days, as follows: Of force 8 on the 8th, 20th, and 25th; of force 9 on the 16th, 23d, and 24th; and of force 10 on the 15th, 27th, and 28th.

Fog.—Fog was reported altogether along the northern routes between 180° and 133° W. on 8 days, during the period from the 18th to the 29th. Along the California-Hawaiian routes, exclusive of coastal waters, there were 9 days with fog, scattered through the month. In California coastal waters ships reported fog on 9 days, and in northern Lower California waters, on 1 day.

ADDITIONAL NOTE ON THE MEXICAN WEST COAST CYCLONE OF OCTOBER 23–25, 1939

By WILLIS E. HURD

In the MONTHLY WEATHER REVIEW, October 1939, under the heading "North Pacific Ocean," mention was made that a tropical cyclone occurred off the Mexican west coast on October 23–25, 1939, and that the American steamer *Nevadan* was reported severely battered by the storm off Manzanillo.

In the issue of the United States Department of Commerce Bureau of Marine Inspection and Navigation Bulletin for December 1939, is quoted the report of Capt. J. H. Masse, of the *Nevadan*, on the ship's experiences in the cyclone while northbound for Los Angeles.

At 6:35 p. m. of October 24 the vessel had Manzanillo Bay light abeam. At 8 p. m. warning was received from San Francisco of a tropical disturbance centered near and southwest of Manzanillo. At 11 p. m., in a fresh gale and noticeably falling barometer, the ship turned left for sea room. Quoting from the captain's report, beginning with 1 a. m. of the 25th:

> From one o'clock on the barometer dropped fast. Between four and five a. m. it dropped 1.3 inches to 28.00 and at 5:30 a. m. reached as low as 27.40. The center was passing over the ship. Wind and rain let up, but mountainous seas continued to roll in from all sides * * *.
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> Immediately the storm center had passed, winds came in once again of hurricane force, with the attending mountainous seas. Visibility was nil; in fact, breathing without a towel over one's nose was difficult, the air was so saturated with sea water. With the great difference of pressure within the ship as against the pressure without and the added impetus of hurricane winds, tar-